

1 1. (presently amended) A method of adding a watermark to a sequence of executable instructions  
2 to render the sequence authenticatable,  
3 the method comprising the steps of:  
4 receiving the sequence of executable instructions and a key; and  
5 using the key to modifying the sequence of executable instructions in a manner determined  
6 by the key so that the watermark may be obtained from the modified sequence, the sequence being  
7 modified such that the usefulness of the modified sequence for the sequence's intended purpose is  
8 not affected by the modifications made thereto and the watermark representing a watermark value  
9 which may be employed to authenticate the sequence, the sequence being modified such that the  
10 usefulness of the sequence for the sequence's intended purpose is not affected thereby.

1 2. (canceled) The method set forth in claim 1 wherein:  
2 the step of receiving the sequence of executable instructions further includes receiving a  
3 watermark value; and  
4 the step of modifying the sequence modifies the sequence so that certain of the instructions  
5 therein represent a watermark value.

1 3. (presently amended) The method set forth in claim 2 wherein the step of modifying the  
2 sequence includes the steps of:  
3 using the key to determine locations in the sequence including modification locations at  
4 which the sequence is to be modified; and  
5 modifying the sequence at the modification locations such that the locations specified by  
6 the key represent the watermark value,  
7 whereby the watermark value may be obtained from the modification locations.

1 4. (original) The method set forth in claim 3 wherein the step of modifying the sequence includes  
2 the step of:

3 inserting one or more executable instructions at each of the modification locations, the  
4 inserted instructions having no effect on any output from the execution of the sequence of  
5 instructions.

1 5. (original) The method set forth in claim 4 wherein:  
2 the instructions at the locations specified by the key represent values of digits of the  
3 watermark value.

1 6. (original) The method set forth in claim 2-1 further comprising the step of:  
2 providing the watermark value to an authenticating entity that authenticates the  
3 watermarked code.

1 7. (original) The method set forth in claim 2-1 further comprising the step of:  
2 providing the key to the authenticating entity.

1 8. (presently amended) The method set forth in claim 1 wherein:  
2 the modified sequence of executable instructions is modified such that when the modified  
3 sequence of executable instructions is executed, execution state is produced which has a property  
4 that depends on the key,  
5 whereby the watermark value is a description of execution state from the modified sequence.

1 9. (presently amended) The method set forth in claim 8 wherein:  
2 the execution state is a stack depth graph.

1 10. (original) The method set forth in claim 9 wherein:  
2 the execution state is output from the execution.

1 11. (original) The method set forth in claim 10 wherein:  
2 the property is an order of elements in the output.

1 12. (original) The method set forth in claim 10 wherein:

2 the property is an additional element in the output.

1 13. (original) The method set forth in claim 10 wherein:

2 the property is a class of an element in the output.

1 14. (original) The method set forth in claim 10 wherein:

2 the property is a constraint that is satisfied by elements of the output.

1 15. (original) The method set forth in claim 8 further comprising the step of:

2 providing a description of the produced execution state to an authenticating entity that

3 authenticates the watermarked code.

1 16. (original) The method set forth in claim 15 further comprising the step of:

2 providing the key to the authenticating entity.

1 17. (presently amended) The method set forth in claim 1 further comprising the step of

2 providing the key to an authenticating entity that authenticates the sequence.

1 18. (original) A method of authenticating a watermarked sequence of executable instructions, the

2 watermark having been produced by modifying the sequence according to a key such that certain

3 of the instructions in the sequence represent a watermark value,

4 the method comprising the steps of:

5 receiving the watermarked sequence or a copy thereof;

6 using the key to locate the certain instructions in the received sequence and read the

7 watermark value; and

8 using the watermark value to determine whether the received sequence is authentic.

1 19. (original) The method of authenticating set forth in claim 18, the method further comprising

2 the step of:

3 receiving another watermark value; and

4           in the step of using the watermark value to determine whether the received sequence is  
5   authentic, the watermark value is compared to the other watermark value.

1   **20.** (original) The method of authenticating set forth in claim 19, the method further comprising  
2   the step of:  
3           receiving the key.

1   **21.** (currently-amended) A method of authenticating a watermarked sequence of executable  
2   instructions, the watermark having been produced by modifying the sequence according to a key  
3   such that when the sequence is executed, execution state is produced,  
4   the method comprising the steps of:  
5           receiving a description of the execution state; and  
6           authenticating the watermarked sequence by confirming that the received description  
7   describes execution state produced by an execution of the modified sequence.

1   **22.** (currently amended) The method set forth in claim ~~20~~21 further comprising the step of:  
2           receiving another description of the execution state, the other description describing  
3   execution state produced by the execution of the modified sequence; and  
4           in the step of authenticating, comparing the description and the other description.

1   **23.** (original) The method set forth in claim 22 wherein:  
2           the other description is a stack depth graph.

1   **24.** (~~original~~currently amended) The method set forth in claim ~~20~~21 wherein the execution state  
2   is output from the execution, the output having a property which can be determined using the key  
3   and  
4   the method further comprises the steps of:  
5           receiving the output from the execution; and  
6           the step of authenticating includes the steps of  
7           receiving the execution state;  
8           employing the key to determine the property; and

9 comparing the determined property with the received description.

1 25. (original) The method set forth in claim 24 wherein:

2 the determined property is an order of elements in the output.

1 26. (original) The method set forth in claim 24 wherein:

2 the determined property is an additional element in the output.

1 27. (original) The method set forth in claim 24 wherein:

2 the determined property is a class of an element in the output.

1 28. (original) The method set forth in claim 24 wherein:

2 the determined property is a constraint that is satisfied by elements of the output.